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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/971,715	10/04/2001	Mark Kintis	12-1214	3046
23446	7590	02/23/2005	EXAMINER	
MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			ZHENG, EVA Y	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/971,715

Applicant(s)

KINTIS ET AL.

Examiner

Eva Yi Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 20 is objected to because of the following informalities: on line 11, recitation: "the analog to digital converting" should be changed to -- an analog to digital converter --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a channelizer in relation with equalizer control unit.
4. Claims 21-26 are rejected base upon the rejected independent claim 20.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 9, 11, 13-16, 18 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Lange (US 4,665,560).

a) Regarding claim 1, Lange discloses a multichannel signal amplitude equalizer comprising:

a multichannel signal input for carrying an input signal with an input bandwidth spanning multiple communication channels (12 in Fig. 1);

a multichannel equalizer connected to the multichannel signal input and including a signal output (inherent as variable attenuator 50 and 50' in Fig. 1); and

an equalizer control (46 in Fig. 1) input coupled to the multichannel equalizer for regulating the multichannel equalizer, whereby the signal output carries, as an output signal, the input signal reduced in dynamic range (Col 2, L 39-51).

b) Regarding claim 12, Lange discloses a method for equalizing signal amplitude in an input signal, the method comprising:

obtaining an input signal with an input bandwidth spanning multiple communication channels (12 in Fig. 1);

coupling the input signal through a multichannel equalizer (inherent as variable attenuator 50 and 50' in Fig. 1); and

reducing input signal dynamic range using the multichannel equalizer (46 in Fig. 1), thereby generating an output signal on a signal output of the multichannel equalizer (Col 2, L 39-51).

c) Regarding claim 2, Lange discloses further comprising an analog to digital (A/D) converter coupled to the multichannel equalizer for digitizing the output signal (36 in Fig.

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1), wherein the A/D converter dynamic range at least equal to an output signal dynamic range (Col 2, L33-38).

d) Regarding claim 3, Lange discloses wherein the A/D converter is characterized by an A/D converter bandwidth at least equal to the input bandwidth (Col 2, L33-38).

e) Regarding claims 9 and 18, Lange discloses further comprising a first local oscillator (16 in Fig. 1) for downconverting a received signal, and a first bandpass filter (18 in Fig. 1) spanning the input bandwidth and coupled to the first local oscillator and the multichannel signal input.

f) Regarding claims 11, 15 and 16, Lange discloses the input signal is a radio frequency input signal (Col 2, L12-14).

g) Regarding claim 13, Lange discloses wherein reducing further comprises reducing input signal dynamic range to be no greater than a predetermined dynamic range (Fig. 3).

h) Regarding claim 14, Lange discloses further comprising an analog to digital (A/D) converter coupled to the multichannel equalizer for digitizing the output signal (36 in Fig. 1), wherein the A/D converter dynamic range no more greater than a predetermined dynamic range (Col 2, L33-38).

7. Claims 1-6, 11-16 and 20-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuura (US 4,835,483).

a) Regarding claim 1, Matsuura discloses a multichannel signal amplitude equalizer comprising:

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a multichannel signal input for carrying an input signal with an input bandwidth spanning multiple communication channels ("incoming IF signal" in Fig1);

a multichannel equalizer connected to the multichannel signal input and including a signal output ("transversal equalizer 1" in Fig. 1); and

an equalizer control (16 in Fig. 1) input coupled to the multichannel equalizer for regulating the multichannel equalizer, whereby the signal output carries, as an output signal, the input signal reduced in dynamic range (Col 2, L10-21).

b) Regarding claim 12, Matsuura discloses a method for equalizing signal amplitude in an input signal, the method comprising:

obtaining an input signal with an input bandwidth spanning multiple communication channels ("incoming IF signal" in Fig1);

coupling the input signal through a multichannel equalizer ("transversal equalizer 1" in Fig. 1); and

reducing input signal dynamic range using the multichannel equalizer (16 in Fig. 1), thereby generating an output signal on a signal output of the multichannel equalizer (Col 2, L10-21).

c) Regarding claim 20, Matsuura discloses a multichannel signal receiver comprising:

a multichannel signal input for carrying an input signal with an input bandwidth spanning multiple communication channels ("incoming IF signal" in Fig1);

a multichannel equalizer connected to the multichannel signal input and including a signal output ("transversal equalizer 1" in Fig. 1);

an equalizer control (16 in Fig. 1) input coupled to the multichannel equalizer for regulating the multichannel equalizer, whereby the signal output carries, as an output signal, the input signal reduced in dynamic range (Col 2, L10-21);

a channelizer (16 in Fig. 1) coupled to the analog to digital converting (14 and 15 in Fig. 1) and comprising a plurality of recovered-channel outputs (Col 1, L 56-59).

d) Regarding claim 2, Matsuura discloses further comprising an analog to digital (A/D) converter coupled to the multichannel equalizer for digitizing the output signal (14 and 15 in Fig. 1), wherein the A/D converter dynamic range at least equal to an output signal dynamic range.

e) Regarding claim 3, Matsuura discloses wherein the A/D converter is characterized by an A/D converter bandwidth at least equal to the input bandwidth (Col 1, L49 – Col 2, L40).

f) Regarding claim 4, Matsuura discloses wherein the multichannel equalizer comprises at least one transversal filter (4 in Fig. 1).

g) Regarding claims 5 and 25, Matsuura discloses wherein the multichannel equalizer comprises at least one variable amplitude and phase module ("transversal equalizer 1" in Fig. 1).

h) Regarding claim 6, Matsuura discloses wherein the multichannel equalizer comprises at least first and second channel attenuators ("transversal equalizer 1" in Fig. 1).

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- i) Regarding claims 11 and 16, Matsuura discloses the input signal is a radio frequency input signal (inherent as digital radio transmission system, Col 1, L10-23), with an input bandwidth spanning multiple wireless communication channels.
- j) Regarding claim 13, Matsuura discloses wherein reducing further comprises reducing input signal dynamic range to be no greater than a predetermined dynamic range (abstract).
- k) Regarding claim 14, Matsuura discloses further comprising an analog to digital (A/D) converter coupled to the multichannel equalizer for digitizing the output signal, wherein the A/D converter dynamic range no more greater than a predetermined dynamic range (abstract).
- l) Regarding claim 15, Matsuura discloses a radio frequency input signal (Col 1, L10-23).
- m) Regarding claim 21, Matsuura discloses further comprising a measurement circuit (16 in Fig. 1) coupled to the recovered channel outputs for measuring an output level of a recovered-channel signal.
- n) Regarding claim 22, Matsuura discloses wherein the measurement circuit is coupled to the equalizer control input (Col 2, L10-21).
- o) Regarding claim 23, Matsuura discloses wherein output level is average power in the recovered-channel signal (202 in Fig. 8; Col 7, L25-33).
- p) Regarding claim 24, Matsuura discloses the measurement circuit is adapted to output an attenuator regulation signal on the equalizer control input when the output level exceeds a predetermined threshold (as shown in Fig. 1).

q) Regarding claim 26, Matsuura discloses wherein the multichannel equalizer comprises a multistep attenuator in at least one channel (as shown in Fig.1).

Claim Rejections - 35 USC § 103

8: The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7, 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (US 4,835,483).

Regarding claims 7, 8 and 17, Matsuura discloses all the subject matters described above except for the specific teaching of the communication channel is a GSM channel and also is a North American Interim Standard (IS) channel.

However, such limitations are merely a matter of design choice and would have been obvious in the system of Matsuura. Matsuura teaches a transversal equalizer in a digital radio communication system. The limitations in claims 7, 8 and 17 do not define a patentably distinct invention over that in Matsuura since both the invention as a whole and Matsuura are directed to amplitude equalizing. Therefore, to have GSM and IS channel in Matsuura would have been a matter of obvious design choice to one of ordinary skill in the art. By doing so, provide equalizing signals in a wide variety of wireless communication systems.

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10. Claims 9, 10, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (US 4,835,483) in view of Mueller et al. (US. 6,111,923)

Regarding claims 9, 10, 18 and 19, Matsuura discloses all the subject matters described above except for the specific teaching of a first and second local oscillator, a first and second bandpass filter in the equalizer.

However, Mueller et al., in the same field of endeavor, disclose a first local oscillator (928 in Fig. 10), a second local oscillator (952 in Fig. 10), a first filter (936 in Fig. 10), and a second filter (968 in Fig. 10), coupled with an equalizer (972 in Fig. 10).

Therefore, it is obvious to one of ordinary skill in art at the invention to combine the oscillators and filters by Mueller et al. with the transversal equalizer system by Matsuura in order to downconverting received signals. By doing so, provide second IF signal that is suitable for subsequent signal processing.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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12. Claims 12-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 12-15 of copending Application No. 09/971,741. This is a provisional obviousness-type double patenting rejection since the conflicting claims have not yet been patented.

13. The subject matters claimed in the instant application and the reference copending application are claiming common subject matter, as follows:

a) Regarding claim 12, a method for equalizing signal amplitude in an input signal, the method comprising:

obtaining an input signal with an input bandwidth spanning multiple communication channels;

coupling the input signal through a multichannel equalizer (signal attenuator);
and

reducing input signal dynamic range using the multichannel equalizer, thereby generating an output signal on a signal output of the multichannel equalizer.

b) Regarding claim 13, wherein reducing further comprises reducing input signal dynamic range to be no greater than a predetermined dynamic range.

c) Regarding claim 14, further comprising digitizing the output signal with an analog to digital (A/D) converter, and wherein reducing further comprises reducing input signal dynamic range to be no greater than a predetermined dynamic range of the A/D converter.

d) Regarding claim 15, wherein obtaining comprises obtaining a radio frequency input signal.

Although the conflicting claim 12 in the instant application and claim 12 in the reference copending application are not identical, they are not patentably distinct from each other because a multichannel equalizer is equivalent to a multichannel signal attenuator. This has been shown both in block 114 of Fig. 1 in the instant application and block 118 of Fig. 1 in reference copending application. Moreover, on page 2, [0022] of the instant application described the multichannel equalizer, which is identical to the description of the multichannel signal attenuator on page 2, [0023] in the reference copending application. Therefore, it is obvious to one of ordinary skill in art to realize that multichannel equalizer has the functionality as the multichannel signal attenuator, except named differently.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

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(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng
Examiner
Art Unit 2634

February 11, 2005



SHUWANG LI
PRIMARY EXAMINER